

PTERIDOPHYTA COLLECTED ON AN EXPEDITION TO NORTHERN MOÇAMBIQUE

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ABSTRACT

Pteridophytes collected by the author on an expedition to Northern Mocambique are treated systematically. They include *Cheilanthes mossambicensis* sp. nov. and *Notholaena leachii* sp. nov. Six new combinations are proposed.

INTRODUCTION

The most recent taxonomic treatment of the Pteridophyta of Moçambique is that of Alston (1954) based largely on the collections of Torr  and Mendon a who collected ferns in the territory during the period 1934–1944. Before them J. T. Last collected some rather fragmentary fern specimens around Namuli in 1886. In order to establish the identity of at least one of the species described from the Last collection and to extend the survey of the distribution of pteridophytes in northern Moçambique for the Flora Zambesiaca, an expedition was undertaken with Mr. L. C. Leach during the dry season in July 1962.

The expedition entered northern Moçambique through Mandimba and followed the road to Nampula, collecting intensively on Ribau  Mountain (serra de Ribau ) and in the vicinity of Ribau  and investigating large and small granite domes along the route. On the return journey the party turned south through Lioma to collect on Namuli Mountain (serra de Gur ).

Ribau  Mountain, which is in an area receiving an average annual rainfall of 1100 mm. (c. 44 in.), was climbed on the eastern side to an altitude of 4,000 ft. *Brachystegia* woodland of varying density was encountered together with forest along the streams. Namuli Mountain, another granite peak, is a higher and larger massif than Ribau  Mountain and receives a much higher rainfall of over 2000 mm. (80 in.) per annum. On the south-western and southern flanks there are extensive tea plantations together with the remnants of tall forest, as are found along the Rio Licungo; the steeper slopes are covered with woodland alternating with forest along the ravines. The party ascended to the main plateau at about 4,000 to 4,500 ft. elevation through the Licungo valley, and traversed round to the north of the main peak and descended on the eastern flank. Gallery forests occurred along the rivers and streams but the greater part of the plateau was under grassland which showed signs of considerable disturbance

by cultivation. There was also evidence that the forests are much less extensive than in the past probably due to felling, burning and shifting cultivation.

Using Alston's (1954) enumeration as a basis and allowing for misidentifications in that paper, the expedition's pteridophyte collections have resulted in 24 new records for the vicinity of Ribauè Mountain and 33 new records for Namuli Mountain. It has also increased the total number of pteridophytes known from northern Moçambique from 55 to 80 species, including two new species described in this paper. Schelpe and Leach collections have been abbreviated to "S & L" and new records for northern Moçambique are marked with an asterisk. The first set of the pteridophyte specimens collected on this expedition are in the Bolus Herbarium, University of Cape Town.

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LYCOPODIACEAE

Lycopodium dacrydioides Bak., Fern Allies: 17 (1887). Type from South Africa.

Urostachys dacrydioides (Bak.) Hert. ex Nessel, Bärlappgew.: 188 (1939).

ZAMBÉZIA: Namuli Mtn. (N.E. sector). Locally frequent low-level epiphyte in gallery forest. 3,500 ft. 27.vii.62. S & L 7057.

****Lycopodium verticillatum*** L.f., Suppl.: 448 (1781). Type from Réunion.

Urostachys verticillatus (L.f.) Hert. ex Nessel, Bärlappgew.: 121 (1939).

Huperzia verticillata (L.f.) Rothm. in Fedde, Rep. Sp. Nov., 54: 60 (1944).

Lycopodium setaceum Lam., Encycl. Méth. Bot., 3: 653 (1789). Type from Mascarene Is.

ZAMBÉZIA: Namuli Mtn. (N.E. sector). Occasional low-level epiphyte in gallery forest. 3,500 ft. 27.vii.62. S & L 7055.

The tropical American *L. acerosum* Sw. is most probably conspecific with *L. verticillatum* L.f.

Lycopodium cernuum L., Sp. Pl., 2: 1103 (1753). Type from Asia.

Lepidotis cernua (L.) Beauv., Prod. Aeth.: 101 (1805).

Lycopodium frutescens Dill., Hist. Musc. reimpr.: 456, t. 63, fig. 10 (1811). Type from Asia.

Lycopodium marianum Willd. in L., Sp. Pl., ed. iv, 5: 31 (1810). Type from Philippine Is.

Lycopodium boryanum A. Rich., Sert. Astrol.: 42 (1834). Type from Mascarene Is.

Lycopodium heeschii K. Muell. in Bot. Zeit., 19: 164 (1861). Type from Sierra Leone.

Lycopodium hupeanum K. Muell. in Bot. Zeit., 19: 165 (1861). Type from Borneo.

Lycopodium secundum K. Muell. in Bot. Zeit., 19: 164 (1861). Type from South Africa.

Lycopodium sikkimense K. Muell. in Bot. Zeit., 19: 164 (1861). Type from Sikkim Himalaya.

ZAMBÉZIA: Namuli Mtn. (S.W. sector), Châ Moçambique. Locally frequent on moist earthbank in open shade. 2,500 ft. 29.vii.62. *S* & *L* 7073.

SELAGINELLACEAE

***Selaginella njamnjamensis** Hieron. in Hedwigia, 39: 312 (1900). Type from Sudan.

NIASSA: 7 mls. W. of Mandimba. Locally abundant in depressions in granite outcrop. 2,000 ft. 17.vii.62. *S* & *L* 6910.

MOÇAMBIQUE: 17 mls. E. of Nova Freixo. Abundant on W. aspect granite outcrop. 1,800 ft. 17.vii.62. *S* & *L* 6912; Ribauè Mtn. (E. sector). Locally abundant on granite outcrop in Brachystegia woodland. 3,100 ft. 19.vii.62. *S* & *L* 6947; 28 mls. E. of Ribauè. Locally abundant on granite outcrop. 1,700 ft. 23.vii.62. *S* & *L* 6978; 6 mls. E. of Nampula. Locally abundant on S.W. aspect granite outcrop. 1,400 ft. 23.vii.62. *S* & *L* 6983; 11 mls. E. of Namina. Locally abundant on granite hill around Vellozia. 2,000 ft. 24.vii.62. *S* & *L* 6985.

ZAMBÉZIA: 10 mls. S. of Lioma. Locally abundant on E. aspect granite outcrop. 25.vii.62. *S* & *L* 6933; Namuli Mtn. (S.W. sector). Locally abundant on granite outcrop on margin of gully forest. 3,200 ft. 25.vii.62. *S* & *L* 7005.

***Selaginella mittenii** Bak. in Journ. of Bot., 21: 81 (1883). Type from Tanganyika.

Selaginella welwitschii Bak. in Journ. of Bot., 21: 81 (1883). Type from Angola.

Selaginella mackenii Bak. in Journ. of Bot., 22: 89 (1884). Type from Natal.

Selaginella cooperi Bak. in Journ. of Bot., 22: 89 (1884). Type from Orange Free State.

Selaginella tectissima Bak. in Journ. of Bot., 22: 89 (1884). Type from Transvaal.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional on streamside earthbanks about boulder bases. 2,000 ft. 19.vii.62. *S* & *L* 6950.

Selaginella abyssinica* Spring in Mém. Acad. roy. Belg., **24: 99 (1850). Type from Ethiopia.

Selaginella kirkii Bak. in Journ. of Bot., **23**: 176 (1885). Type from Usagura Mtns.

Selaginella goetzei Hieron. in Bot. Jahrb., **30**: 265 (1901). Type from Kinga Mtns.

Selaginella whytei Hieron. in Engler & Prantl., Nat. Pflanzenfam., **1** (4): 697 (1901). Type from Nyasaland.

Selaginella preussii Hieron. in Engler & Prantl., Nat. Pflanzenfam., **1** (4): 686 (1901). Type from Cameroons.

Selaginella bueensis Hieron. in Hedwigia, **43**: 20 (1904). Type from Nigeria.
MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional on forest floor in gully. 3,600 ft. 19.vii.62. *S* & *L* 6924.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Locally frequent on shaded earthbank in gallery forest. 4,300 ft. 26.vii.62. *S* & *L* 7036.

MARATTIACEAE

Marattia fraxinea Smith ex Gmel. var. *salicifolia* (Schrad.) C.Ch. in Perrier, Catalogue Pl. Madag.: 67 (1932).

Marattia salicifolia Schrad. in Gött. gel. Anz., **1818**: 920 (1818). Type from South Africa.

Marattia natalensis Presl, Suppl.: 9 (1845). Type from Natal.

Marattia dregeana Presl, Suppl.: 9 (1845). Type from Pondoland.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Locally common along stream in deep shade in gully forest. Stipe prickly. 3,500 ft. 19.vii.62. *S* & *L* 6936.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional in deep shade in gully. 2,500 ft. 25.vii.62. *S* & *L* 6999.

The Moçambique and South African plants have consistently more attenuated and narrower pinnules, which are also usually more closely serrate, than in the typical variety from the Mascarene Islands.

OSMUNDACEAE

Osmunda regalis L., Sp. Pl. 2: 1065 (1753). Type from Europe.

Struthiopteris regalis (L.) Bernh. in Schrad. Journ., **1800** (2): 126 (1801).

Osmunda capensis Presl, Suppl.: 63 (1845) non L. (1771). Type from Pondoland, S. Africa.

Osmunda regalis L. var. *capensis* (Presl.) Milde, Fil. Europ.: 63 (1867).

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Locally common on streambank in light shade. 4,300 ft. 26.vii.62. *S* & *L* 7023.

GLEICHENIACEAE

Dicranopteris linearis (Burm. f.) Underw. in Bull. Torrey bot. Cl., **34**: 250 (1907).

Polypodium lineare Burm. f., Fl. Ind.: 235, t. 67, fig. 2 (1768). Type cited from Java but probably from Ceylon.

Gleichenia linearis (Burm. f.) Clarke in Trans. Linn. Soc. Lond., **1**: 428 (1880).

Mertensia linearis (Burm. f.) Fritsch in Bull. Herb. Boiss., sér. 2, **1**: 1092 (1901).

ZAMBÉZIA: Namuli Mtn. (S.W. sector), Châ Moçambique. Occasional in gallery forest in open shade. 2,700 ft. 29.vii.62. *S & L* 7078.

HYMENOPHYLLACEAE

Trichomanes pyxidiferum L. var. **melanotrichum** (Schlechtend.) Schelpe stat. nov. et comb. nov.

Trichomanes melanotrichum Schlechtend., Adumbr.: 56 (1825). Type from Cape Province. (Basionym).

Vandenboschia melanotricha (Schlechtend.) Pic. Serm. in Webbia, **12**: 127 (1955).

Trichomanes frappieri Cordem. in Bull. Soc. Sci. Art. Réunion, **1890-91**: 37 (1891). Type from Réunion.

Trichomanes pyxidiferum L. forma. *major* Taton in Bull. Soc. roy. Bot. Belg., **78**: 34 (1946).

MOÇAMBIQUE: Ribauè Mtn. (E. sector) Rare, low-level epiphyte in deep shade in gallery forest. 3,500 ft. 19.vii.62. *S & L* 6940.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional lithophyte in deep shade in gallery forest. 4,300 ft. 26.vii.62. *S & L* 7038; Namuli Mtn. (S.W. sector), Rio Licungo. Locally abundant on deeply shaded rocks in tall riverine forest. 3,200 ft. 29.vii.62. *S & L* 7086.

The West Indian *T. pyxidiferum* has larger and more open fronds than in similarly luxuriant forms of the African plants but since no consistent differences seem to exist between the more common smaller forms in the two geographical areas, the South African segregate is treated here as a variety of the American plant.

CYATHEACEAE

Cyathea dregei Kunze in Linnaea, **10**: 551 (1836). Type from Pondoland.

Cyathea burkei Hook., Sp. Fil., **1**: 23, t. 17, fig. b (1844). Type from Transvaal.

Cyathea angolensis Welw. ex Hook., Syn. Fil.: 22 (1865). Type from Angola.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional in light shade on stream-bank. Trunk 3 ft. high. 3,400 ft. 19.vii.62. *S & L* 6943.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional in gully. Trunk 6 ft. high, stipe slightly tuberculate, frond 6 ft. long. 3,200 ft. 25.vii.62. *S & L* 7006.

DENNSTAEDTIACEAE

Pteridium aquilinum (L.) Kuhn in v. Deck., Reisen, 3 (3) Bot.: 11 (1879).

Pteris lanuginosa Bory ex Willd. in L., Sp. Pl., ed. iv, 5: 403 (1810). Type from Réunion.

Allosorus lanuginosus (Bory ex Willd.) Presl, Tentamen: 154 (1836).

Pteris capensis Thunb., Prod. Pl. Cap.: 172 (1800). Type from Cape Province.

Allosorus capensis (Thunb.) Pappe & Raws., Syn. Fil. Afr. Austr.: 32 (1858) non Presl. (1836).

Pteridium capensis (Thunb.) Krasser in Ann. Hofmus. Wien, 15: 6 (1900).

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional to frequent in undergrowth of *Brachystegia* woodland. Fronds up to 5 ft. long. 3,800 ft. 19.vii.62. *S & L* 6928.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Locally abundant in undergrowth of woodland and in cleared land. 2,500 ft. 25.vii.62. *S & L* 7003.

VITTARIACEAE

Vittaria guineensis Desv. var. ***orientalis*** Hieron. in Bot. Jahrb., 53: 423 (1915). Varietal type from Tanganyika.

ZAMBÉZIA: Namuli Mtn. (S.W. sector), Rio Licungo. Locally frequent low-level epiphyte in tall riverine forest. 3,000 ft. 29.vii.62. *S & L* 7079.

Vittaria volkensii Hieron. in Bot. Jahrb., 53: 428 (1915). Type from Tanganyika.

ZAMBÉZIA: Namuli Mtn. (N.W. sector). Locally common low-level epiphyte in gallery forest. 4,500 ft. 26.vii.62. *S & L* 7045; Namuli Mtn. (S.W. sector), Rio Licungo. Occasional low-level epiphyte in tall riverine forest. 3,000 ft. 29.vii.62. *S & L* 7080.

ADIANTACEAE

****Pityrogramma calomelanos*** (Sw.) Link, Handb. Gewächse, 3: 20 (1833).

Acrostichum calomelanos L., Sp. Pl., 2: 1072 (1753). Type from America.

Acrostichum ebeneum L., Sp. Pl., 2: 1071 (1753). Type from Jamaica.

Gymnogramma bidentata Presl, Rel. Haenk., 1: 18, t.2, fig. 3 (1825).

Gymnogramma distans Link, Hort. Berol., 2: 53 (1833). Type from ?Brazil.

Pityrogramma chamaesorbis Domin in Publ. Fac. Sci. Univ. Charl., 88: 6 (1928). Type from British Guiana.

Pityrogramma insularis Domin in Publ. Fac. Sci. Univ. Charl., 88: 6 (1928). Syntype from Principé and Fernando Po.

ZAMBÉZIA: Namuli Mtn. (E. sector). Rare, on streambank between tea plantations. 2,300 ft. 27.vii.62. *S & L* 7071; Namuli Mtn. (S.W. sector), Châ Moçambique. Locally frequent on earthbank in open shade. 2,500 ft. 29.vii.62 *S & L* 7074.

The typical variety of this tropical American species has apparently been introduced to many parts of the tropics of the Old World. This variety has been noted as a weed in West Africa by Alston (1959) and by Wardlaw (1962). The earliest specimens recorded from Africa are from Fernando Po and Principé in 1858.

***Adiantum philippense* L.**, Sp. Pl., 2: 1094 (1753). Type from Philippine Is.

Adiantum lunulatum Burm. f., Fl. Ind.,: 235 (1768). Type from ? India.

Pteris lunata Retz., Observ. Bot., 2: 28, t.4 (1781).

Adiantum lunatum Cav., Descr. Pl., 1: 272 (1802). Type from Mariana or Philippine Is.

Adiantum arcuatum Sw., Syn. Fil.: 122 (1806). Type from Mariana or Philippine Is.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Locally common on shaded earthbank. 2,000 ft. 19.vii.62. *S & L* 6953.

***Pteris catoptera* Kunze** in Linnaea, 18: 119 (1844). Type from Natal.

Pteris abrahamii Hieron. in Bot. Jahrb., 53: 409 (1915). Type from Natal.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional on floor of gully forest in shade. 3,500 ft. 19.vii.62. *S & L* 6938.

A forest species with thin textured fronds which is frequent in the eastern parts of Southern Africa and which has been confused in the past with *P. biaurita* L. and *P. quadriaurita* Retz.

***Pteris friesii* Hieron.**, Wiss. Ergebn. Schwed. Rhodesia—Kongo Exped. 1911–12. Bot., 1: 5 (1914). Type from Northern Rhodesia.

ZAMBÉZIA: Namuli Mtn. (S.W. sector), Châ Moçambique. Occasional on shaded moist earthbanks and as a weed in tea plantations. 2,500 ft. 29.vii.62. *S & L* 7075.

A species with consistently firmer fronds than in *P. catoptera* and with a wide distribution in East Tropical Africa.

***Cheilanthes mossambicensis* Schelpe** sp. nov.

Ex affinitate *C. welwitschii* Hook. differt farina aurantiaco, frondibus 4–6 jugatis, rhizoma gracile.

Rhizoma repens gracile, 2 mm. diam., paleis subulatis 1.5 mm. longis atrofusis vestitis, frondibus c. 5 mm. separatim instructis. Stipes teres castaneus usque ad 22 cm. longus, paleis anguste lanceolatis fuscis caducis et farina aurea donec immaturus. Lamina bipinnatifida oblonga, supra atroviridem, subtus aurantiaco-farinosa usque as 17 cm. longa et 7 cm. lata, 4–6 juga. Rachis sulcata, farinosa donec immatura. Pinnae petiolatae vel sessiles ovato-lanceolatae,

pinnatifidis, lobis oblongis crenatis usque ad 5 mm. latis, lobis basiscopis longioris quam lobis acroscopicis. Costae et costulae subtus castaneae. Sori marginales, sporangiis in linea tenue dispositis; indusia angustissima irregulariter lacerata. Sporae subglobosae, flavidae, $42-48\mu$ diam., minute verrucosae.

Rhizome creeping, slender, 2 mm. diam. clothed with dark brown subulate scales 1.5 mm. long, bearing fronds at intervals of c. 5 mm. Stipe castaneous terete, up to 22 cm. long with caducous narrowly lanceolate brown scales and yellow farina when immature. Lamina bipinnatifid oblong or narrowly oblong, dark green above, orange farinose (Cadmium orange; HCC 8) below, up to 17 cm. long and 7 cm. broad with 4-6 (usually 5) pairs of pinnae. Rachis sulcate, farinose when young. Pinnae petiolate or sessile, ovate-lanceolate pinnatifid with narrowly oblong crenate lobes up to 5 mm. broad, the basiscopic lobes longer than the acroscopic lobes. Costae and costules castaneous below. Sori marginal; indusia very narrow (less than 1 mm. broad) irregularly lacerate. Spores subglobose yellow $42-48\mu$ diam., minutely verrucose.

HOLOTYPE: Moçambique district, Ribauê, $1\frac{1}{2}$ mls. S.W. of Poste Agrícola; locally abundant in overhung horizontal N.W. aspect crevice on granite hill. 1,800 ft. alt. 20.vii.1962. *Leach & Schelpe* 11421 (BOL). ISOTYPES (K, SRGH, etc.).

PARATYPE: Tanganyika, Songea district, Chandamara Hill, about 6 km. N. of Songea in crevices in rock outcrops near top of hill. 1,200 m. 23.iii.1956. *Milne-Redhead & P. Taylor* 9292 (BOL ex K).

C. mossambicensis is most closely similar to the Angolan *C. welwitschii* but differs from the latter in having orange not ochre yellow farina, in having the fronds more widely spaced on the rhizome and in having fronds which are broader and consist of fewer pinnae. The much larger *C. farinosa* (Forsk.) Kaulf. which is widespread in tropical Africa has a much paler yellowish farina and appears to be confined to much moister habitats.

***Cheilanthes multifida* (Sw.) Sw., Syn. Fil.: 129, 334 (1806).**

Adiantum multifidum Sw. in Schrad. Journ., **1800** (2): 85 (1801). Type from Cape Province.

Adiantum globatum Poir., Encycl. Méth. Bot., Suppl. 1: 144 (1810). Type from Cape Province.

Cheilanthes refracta Pappe & Raws., Syn. Fil. Afr. austr.: 34 (1858). Type from Cape Province.

Cheilanthes madagascariensis Bak. in Journ. Linn. Soc., Lond., **16**: 198 (1877). Type from Madagascar.

Adiantopsis madagascariensis (Bak.) C. Chr., Ind. Fil.: 22 (1905).

Cheilanthes bolusii Bak. in Hook., Ic. Pl.: t.1636 (1886). Type from Cape Province.

Cheilanthes horizontalipinnata Bonap., Not. Pterid., **16**: 87 (1925). Type from Madagascar.

ZAMBÉZIA: Namuli Mtn. (W. sector). Locally frequent in rock crevices. 5,000 ft. 26.vii.62. *S* & *L* 7017.

***Notholaena leachii* Schelpe sp. nov.**

Ex affinitate *N. buchananii* Bak. sed frondibus sterilibus arcuatis proliferis.

Rhizoma breviter repens, c. 4 mm. diam., paleis anguste lanceolatis brunneis saepe linea atra centrale. Frondes confertae, fertiles suberectae, steriles arcuatae infra apicem proliferae. Stipes teres atrocastaneus plus minusve pilosus, usque ad 19 cm. longus. Lamina bipinnata vel bipinnatifida, anguste ovata vel lanceolata usque ad 9 cm. longa et 5.5 cm. lata, subtus et supra pilosa. Rachis teres atrocastanea pilosa. Pinnae ovatae vel inaequaliter deltoideae, inferiores petiolatae, superiores subsessiles, lobis integris crenatis vel pinnatifidis, 1—10 mm. latis, lobis basiscopicis longioris quam acroscopicis. Costae, et costulae pinnarum inferiorum, subtus atrocastaneae pilosae; venulae immersae. Sori marginales sporangiis numerosis; indusia angustissima. Sporae subglobosae, pallide brunneae, 41—48 μ . diam., minute verrucosae.

Rhizome shortly creeping, c. 4 mm. diam., clothed with narrowly lanceolate brown scales often with a dark central stripe. Fronds clustered on the rhizome; fertile fronds suberect, sterile fronds arching over to ground level, proliferous below the apex, occasionally proliferous on costae of basal pinnae in luxuriant specimens. Stipe terete dark castaneous, more or less pilose or later glabrous, up to 19 cm. long. Lamina narrowly ovate or lanceolate, bipinnate or bipinnatifid, up to 9 cm. long and 5.5 cm. broad, pilose above and below. Rachis terete dark castaneous pilose. Pinnae ovate or unequally deltoid, the lower petiolate, the upper subsessile, with entire, crenate or pinnatifid lobes, 1—10 mm. broad, the basiscopic lobes longer than the acroscopic lobes. Costae, and the costules of the lower pinnae, dark castaneous pilose below; veins immersed. Sori marginal with numerous sporangia; indusia very narrow (less than 0.5 mm. broad). Spores subglobose, pale brown, 41—48 μ . diam., minutely verrucose.

HOLOTYPE: Moçambique, Moçambique district, Ribauè, 1½ mls. S.W. of Poste Agrícola; locally common around boulder bases on S. aspect of granite hill. 1,800 ft. alt. 21.vii.1962. *Schelpe & Leach* 6973 (BOL) ISOTYPES: (K, SRGH, etc.).

PARATYPES: Moçambique, Zambezia district, Namuli Mtn. (W. sector); rare, under boulder on S. aspect. 5,000 ft. 26.vii.62. (luxuriant form) *S* & *L* 7018 (BOL); Moçambique district, 6 mls. E. of Nampula, occasional around boulder bases or overhanging Vellozia mats on S. aspect of granite outcrop. 1,400 ft. 23.vii.62. *S* & *L* 6984; Moçambique district, 11 mls. E. of Namina, occasional

in S. aspect granite crevices in shade of Vellozia. 2,000 ft. 24.vii.62. *S & L* 6987.

N. leachii superficially resembles the Southern African *N. buchananii* but can be distinguished in herbarium specimens by the proliferous sterile fronds. In the field it is even more distinct with the sterile fronds arching over and producing young plants near their apices usually resulting in the formation of a mat of plants. It is virtually certain that the specimen from Nampula (*Torre* 767) referred by Alston (1954) to *N. buchananii* belongs to this new species, which appears to be confined to northern Moçambique.

N. leachii is extremely variable in the size of its fronds and the shape and size of the pinna lobes. The specimens collected on Namuli Mountain in an 80 inch rainfall area are more than twice the size of those collected near Ribauè with a rainfall of about 44 inches per annum.

Doryopteris concolor (Langsd. & Fisch.) Kuhn var. **kirkii** (Hook.) Fries, Wiss. Ergebn. Schwed. Rhodesia-Kongo Exped., 1911–1912, Bot., 1: 4 (1914).

Cheilanthes kirkii Hook., Second Cent.: t.81 (1861). Type from Moçambique.

Doryopteris kirkii (Hook.) Alston in Bol. Soc. Brot., 30: 14 (1956).

Adiantum palmatum Schumach. in Kongl. Dansk Vid. Selsk., Nat. & Math. Afh., 4: 234 (1829). Type from West Africa.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional on shaded earthbank. 2,000 ft. 19.vii.62. *S & L* 6954.

Most of the African specimens exhibit more cheilanthoid sori than those from Asia, America or Australasia and on this character are referred to the var. *kirkii*.

Pellaea viridis (Forsk.) Prantl in Bot. Jahrb., 3: 420 (1882).

Pteris viridis Forsk., Fl. Aegypt. Arab.: 186 (1775). Type from Yemen.

Adiantum viride (Forsk.) Vahl, Symb. Bot., 3: 104 (1794).

Cheilanthes viridis (Forsk.) Sw., Syn. Fil.: 127 (1806).

Pteridella viridis (Forsk.) Mett. ex Kuhn, v. Decken Reisen, 3 (3), Bot.: 16 (1879).

Allosorus viridis (Forsk.) O. Kuntze, Rev. Gen. Pl., 2: 806 (1891).

Pteris polymorpha Poir., Encycl. Méth. Bot., 5: 719 (1804). Type from Mascarene Is.

Pteris adiantoides Bory ex Willd. in L., Sp. Pl., ed. iv, 5: 391 (1810). Type from Réunion.

Allosorus adiantoides (Bory ex Willd.) Presl, Tentamen: 153 (1836).

Pellaea adiantoides (Bory ex Willd.) J. Sm., Cat. Kew Ferns: 4 (1856)

Platyloma adiantoides (Bory ex Willd.) Lowe, Ferns, 3: t.33 (1857).

Pteris hastaefolia Schrad. in Gött. gel. Anz., 1818: 917 (1818). Type from Cape Province.

MOÇAMBIQUE: Ribauè, 1½ mls. S.W. of Poste Agricola. Occasional in semi-shade on granite outcrop. 1,800 ft. 21.vii.62. *S* & *L* 6971.

ZAMBÉZIA: 10 mls. S. of Lioma. Occasional on E. aspect granite outcrop. 25.vii.62. *S* & *L* 6994.

Both specimens approach *P. viridis* var. *glauca* Sim in the degree of dissection of the fronds.

Pellaea dura (Willd.) Bak. in Journ. of Bot., **1880**: 327 (1880).

Pteris dura Willd. in L., Sp. Pl., ed. iv, **5**: 376 (1810). Type from Mauritius.

Allosorus durus (Willd.) Presl, Tentamen: 153 (1836).

Litobrochia dura (Willd.) Moore, Index: 44 (1857).

Pteridella dura (Willd.) Kuhn, v. Decken Reisen, **3** (3), Bot.: 14 (1879).

Pteris burkeana Hook., Sp. Fil., **2**: 213, t.126, fig. B (1858). Type from Transvaal.

Pellaea burkeana (Hook.) Bak., Syn. Fil.: 153 (1867).

Pellaeopsis burkeana (Hook.) J. Sm., Hist. Fil.: 290 (1875).

ZAMBÉZIA: Namuli Mtn. (E. sector). Occasional weed in tea plantation. 2,300 ft. 27.vii.62. *S* & *L* 7072.

Pellaea doniana J. Sm. ex Hook., Sp. Fil., **2**: 137, t.125, fig. A (1858). Type from São Tomé.

Pteris doniana (J. Sm. ex Hook.) Kuhn, Fil. Afr.: 80 (1868).

Pteridella doniana (J. Sm. ex Hook.) Kuhn, v. Decken Reisen, **3** (3), Bot.: 13 (1879).

Allosorus donianus (J. Sm. ex Hook.) O. Kuntze, Rev. Gen. Pl., **2**: 806 (1891).

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Locally common on streamside in open shade. 2,000 ft. 19.vii.62. *S* & *L* 6951.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional on streambank in semi-shade. 2,500 ft. 25.vii.62. *S* & *L* 7004.

Pellaea calomelanos (Sw.) Link var. **swynnertoniana** (Sim) Schelpe stat. nov. et comb. nov.

Pellaea swynnertoniana Sim, Ferns S. Afr., ed. ii: 213, t.101 (1915). Type from Southern Rhodesia. (Basionym)

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional about large granite outcrop in Brachystegia woodland. 3,100 ft. 19.vii.62. *S* & *L* 6945.

In this population the segments of the lamina are mostly triangular deltoid as in typical var. *swynnertoniana* but are smaller in size. As there is an almost continuous intergradation in pinnule shape between typical *P. calomelanos* and typical *P. swynnertoniana*, all the forms with large or small deltoid triangular segments can be referred to the var. *swynnertoniana*.

Actiniopteris dimorpha Pic. Serm. in Webbia, **17**: 18, t.2 (1962). Type from Tanganyika.

NIASSA: 7 mls. W. of Mandimba. Locally frequent around boulder bases on granite outcrop in Brachystegia woodland. 2,000 ft. 17.vii.62. *S* & *L* 6909.

MOÇAMBIQUE: 17 mls. E. of Nova Freixo. Occasional around boulder bases on granite outcrop. 1,800 ft. 17.vii.62. *S* & *L* 6911; 28 mls. E. of Malima. Occasional among rubble under shrubs on W. aspect granite outcrop. c. 2,000 ft. 18.vii.62. *S* & *L* 6913; Ribauè Mtn. (E. sector). Locally frequent about bare granite outcrop in Brachystegia woodland. 3,100 ft. 19.vii.62. *S* & *L* 6946; Ribauè Mtn. (E. sector). Locally frequent on streamside in open shade. 2,000 ft. 19.vii.62. *S* & *L* 6952; Ribauè, 1½ mls. S.W. of Poste Agrícola. Common among grass tussocks and on ledges on granite outcrop. 1,800 ft. 21.vii.62. *S* & *L* 6972; 28 mls. E. of Ribauè. Occasional in Vellozia clumps on granite outcrop. 1,700 ft. 23.vii.62. *S* & *L* 6979; 11 mls. E. of Namina. Occasional on granite hill about Vellozia stems. 2,000 ft. 24.vii.62. *S* & *L* 6986.

ZAMBÉZIA: 10 mls. S. of Lioma. Occasional on E. aspect granite outcrop. 25.vii.62. *S* & *L* 6995.

All the material of this genus collected in Northern Moçambique shows strong dimorphism between the sterile and fertile fronds. This taxon has previously been referred to the Mascarene *A. australis* (L.f.) Link (Alston, 1954).

POLYPODIACEAE

Pyrrisia schimperiana (Mett. ex Kuhn) Alston in Journ. of Bot., **72**, Suppl. 2: 8 (1934).

Polypodium schimperianum Mett. ex Kuhn, Fil. Afr.: 152 (1868). Type from Ethiopia.

Cyclophorus schimperianus (Mett. ex Kuhn) C. Chr., Ind. Fil.: 200 (1905).

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional mid-level epiphyte in Brachystegia woodland. 3,500 ft. 19.vii.62. *S* & *L* 6919.

Pyrrisia rhodesiana (C. Chr.) Schelpe in Journ. S. Afr. Bot., **18**: 126 (1952).

Cyclophorus rhodesianus C. Chr. in Dansk Bot. Arkiv, **7**: 161 (1932). Type from Southern Rhodesia.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Locally frequent low-level epiphyte in gully forest. 3,500 ft. 19.vii.62. *S* & *L* 6922.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Locally common low-level epiphyte in gully forest. 3,200 ft. 25.vii.62. *S* & *L* 7007.

***Belvisia spicata** (L.f.) Mirbel, Hist. nat. de Pl., **4**: 65 (1803).

Acrostichum spicatum L.f. Suppl.: 444 (1781). Type from Mauritius.

Hymenolepis spicata (L.f.) Presl, Epim. Bot.: 159 (1849).

Hymenolepis spicata (L.f.) Presl var. *occultivenia* C. Chr. in Dansk bot. Arkiv, **6**: 57 (1929). Varietal syntype from Madagascar, Seychelles and São Tomé.

Hymenolepis spicata (L.f.) Presl var. *usambarensis* C. Chr. in Dansk bot. Arkiv, **6**: 57 (1929). Varietal type from Tanganyika.

ZAMBÉZIA: Namuli Mtn. (N.E. sector). Rare, low-level epiphyte in gully forest. 3,200 ft. 25.vii.62. *S* & *L* 7054; Namuli Mtn. (S.W. sector), Rio Licungo. Rare, low-level epiphyte in riverine forest in deep shade. 3,200 ft. 29.vii.62. *S* & *L* 7082.

Loxogramme lanceolata (Sw.) Presl, Tentamen: 215, t.9, fig. 8 (1836).

Grammitis lanceolata Sw. in Schrad. Journ., **1800** (2): 18, t.1, fig. 4 (1801). Type from Mascarene Is.

Antrophyum lanceolatum (Sw.) Blume, Fl. Jav. Fil.: 84, t.36 (1828).

Selliguea lanceolata (Sw.) Fée, Gen. Fil.: 177 (1852).

Gymnogramma lanceolata (Sw.) Hook., Sp. Fil., **5**: 156 (1864).

Grammitis coriacea Kaulf. ex Spreng., in L., Syst. Veg., ed. xvi, **4**: 41 (1827). Type from Mascarene Is.

Loxogramme coriacea (Kaulf. ex Spreng.) Presl, Tentamen: 215 (1836).

Selliguea coriacea (Kaulf. ex Spreng.) Fée, Gen. Fil.: 177 (1852).

Polypodium coriaceum (Kaulf. ex Spreng.) Mett., Polypod.: 112, t.3, fig. 25 (1857).

Polypodium loxogramme Mett., Polypod.: 112, t.2, fig. 25 (1857). Type from Mascarene Is.

Gymnogramma abyssinica Bak., Syn. Fil.: 517 (1874). Type from Ethiopia.

Loxogramme suberosa Christ in Ann. Mus. Congo, sér. 5, **3**: 37 (1909). Type from Congo.

Polypodium suberosum (Christ) C. Chr., Ind. Fil., Suppl.: 62 (1913).

Loxogramme africana Copel. in Philipp. Journ. Sci., **11**: 45, t.1, fig. 4 (1916). Type from Angola.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Locally frequent low-level epiphyte in deep shade in gully forest. 3,600 ft. 19.vii.62. *S* & *L* 6918.

Polypodium polypodioides (L.) Hitch. subsp. *ecklonii* (Kunze) Schelpe stat. nov. et comb. nov.

Polypodium ecklonii Kunze in Linnaea, **10**: 498 (1836). Type from Cape Province. (Basionym).

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional low-level epiphyte in gully forest. 3,200 ft. 25.vii.62. *S* & *L* 6996; Namuli Mtn. (S.W. sector), Rio Licungo. Locally common low-level epiphyte in tall riverine forest. 3,200 ft. 29.vii.62. *S* & *L* 7085.

The African subspecies is distinguished by the presence of hydathodes at the ends of the veins and by the usual presence of a central sclerotic band in the entire rhizome scales.

Pleopeltis lanceolata (L.) Kaulf., Enum. Fil.: 245 (1824).

Polypodium lanceolatum L., Sp. Pl., 2: 1082 (1753). Type from South (? Central) America.

Polypodium adpersum Schrad. in Gött. gel. Anz., 1818: 915 (1818). Type from Cape Province.

Polypodium lepidotum Willd. ex Schlechtend., Adumbr.: 17, t.8 (1825).

Pleopeltis lepidota (Willd.) Presl, Tentamen: 193 (1836).

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Locally frequent low- to mid-level epiphyte in gully forest. 3,500 ft. 19.vii.62. *S* & *L* 6923.

ZAMBÉZIA: Namuli Mtn. (S.W. sector), Rio Licungo. Frequent mid-level epiphyte in riverine forest. 3,200 ft. 29.vii.62. *S* & *L* 7088.

Pleopeltis schraderi (Mett.) Tardieu, Fl. Madag., Polypod., 2: 110 (1960).

Polypodium schraderi Mett., Polypodium: 98, n. 179, t.2, fig. 11 (1857). Type from Cape Province.

Niphobolus schraderi (Mett.) Keys., Pol. Cyath. Hb. Bung.: 39 (1873).

Polypodium lineare Thunb. var. *schraderi* (Mett.) Sim, Ferns S. Africa, ed. ii: 276 (1915).

Polypodium elongatum Schrad. in Gött. gel. Anz., 1818: 915 (1818) non Aiton (1789). Type from Cape Province.

Phymatodes elongata (Schrad.) Pappe & Raws., Syn. Fil. Afr. Austr.: 41 (1858).

Polypodium gueintzii Mett., Polypodium: 91, n. 161, t.3, figs 18—19 (1857). Type from Natal.

ZAMBÉZIA: Namuli Mtn. (E. sector). Occasional epiphyte in woodland. 3,800 ft. 27.vii.62. *S* & *L* 7068; Namuli Mtn. (S.W. sector), Rio Licungo. Occasional low-level epiphyte in deep shade in tall riverine forest. 3,200 ft. 29.vii.62. *S* & *L* 7083.

Pleopeltis excavata (Bory ex Willd.) Moore, Index: 347 (1862).

Polypodium excavatum Bory ex Willd. in L., Sp. Pl., ed. iv, 5: 158 (1810). Type from Mascarene Is.

Phymatodes excavata (Bory ex Willd.) Presl, Tentamen: 196 (1836).

Drynaria excavata (Bory ex Willd.) Fée, Gen. Fil.: 270 (1852).

Polypodium simplex Sw. in Schrad. Journ., 1800 (2): 19 (1801) non Burm. (1768). Type from Mascarene Is.

Phymatodes simplex (Sw.) Presl, Tentamen: 196 (1836).

Pleopeltis simplex (Sw.) Beddome, Handb. Ferns Brit. India: 347 (1883).

ZAMBÉZIA: Namuli Mtn. (E. sector). Occasional deciduous epiphyte in forest. 3,800 ft. 27.vii.62. *S* & *L* 7067; Namuli Mtn. (S.W. sector), Rio Licungo. Frequent mid-level epiphyte in tall riverine forest. 3,200 ft. 29.vii.62. *S* & *L* 7093.

DAVALLIACEAE

Nephrolepis undulata (Afz. ex Sw.) J.Sm. in Curtis Bot. Mag., **72**, Comp.: 35 *bis* (1846).

Aspidium undulatum Afz. ex Sw. in Schrad. Journ., **1800** (2): 32 (1801). Type from Sierra Leone.

Aspidium imbricatum Kaulf. ex Spreng. in L., Syst. Veg., ed. xvi, **4**: 97 (1827). Type from Mauritius.

Nephrolepis imbricata (Kaulf. ex Spreng.) Presl, Tentamen: 79 (1836).

Nephrolepis pluma Moore in Gard. Chron., n.s., **9**: 588, fig. 68 (1878). Type from Madagascar.

Nephrolepis filipes Christ in Ann. Mus. Congo, V, **1** (3): 213 (1906). Type from Congo.

Nephrolepis cordifolia (L.) Presl var. *compacta* Bonap., Not. Pterid., **14**: 265 (1923).

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Frequent in undergrowth of Brachystegia woodland. 3,800 ft. 9.vii.62. *S* & *L* 6927.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Frequent in undergrowth on margin of gully forest. 2,500 ft. 25.vii.62. *S* & *L* 7001.

Tubers were produced in both populations. The variation range in the African plants referred to *N. undulata* overlaps that of American plants referred to *N. cordifolia* (L.) Presl and these two taxa will probably have to be considered as conspecific. However, there is some doubt about the correct application of the name *N. cordifolia* among the American species.

Arthropteris orientalis (Gmel.) Posth. in Rec. Trav. bot. Néerl., **21**: 218 (1924).

Polypodium orientale Gmel. in L., Syst. Nat., ed. xiii, **2**: 1312 (1791). Type from Yemen.

Dryopteris orientalis (Gmel.) C. Chr., Ind. Fil.: 281 (1905).

Polypodium pectinatum Forsk., Fl. Aegypt. Arab.: 185 (1775) non L. (1753). Type from Yemen.

Aspidium albopunctatum Bory ex Willd. in L., Sp. Pl., ed. iv, **5**: 242 (1810). Type from Mauritius.

Nephrodium albopunctatum (Bory ex Willd.) Desv. in Mém. Soc. Linn. Par., **6**: 255 (1827).

Aspidium thonningii Schumach. in Kongl. Dansk Vid. Selsk., Nat. & Math. Afh., **4**: 229 (1829). Type from West Africa.

Aspidium leucosticton Kunze in Linnaea, **23**: 227, 301 (1850). Type from Sierra Leone.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Locally frequent on humus covered boulder in shade in gully forest. 3,400 ft. 19.vii.62. *S* & *L* 6942. (Articulation halfway up stipe).

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Locally frequent on humus covered rock in gully forest. 3,200 ft. 25.vii.62. *S* & *L* 6997.

Arthropteris monocarpa (Cordem.) C. Chr. in Perrier, Cat. Pl. Madag., Pterid.: 32 (1931).

Nephrodium monocarpum Cordem. in Bull. Soc. Sci. Art. Réunion 1890–1891: 74 (1891). Type from Réunion.

ZAMBÉZIA: Namuli Mtn. (S.W. sector), Rio Licungo. Frequent on mossy boulders and as low-level epiphyte in tall riverine forest. 3,200 ft. 29.vii.62. *S* & *L* 7091.

Oleandra distenta Kunze in Bot. Zeit., **1851**: 347 (1851). Type from Transvaal.

Oleandra densifrons Kunze in Bot. Zeit., **1851**: 347 (1851). Type from Natal.

Aspidium articulatum Willd. in L., Sp. Pl., ed. iv, **5**: 212 (1810) non Sw. (1801). Type from Mauritius.

Oleandra articulata (Sw.) Presl var. *welwitschii* Bak., Syn. Fil., ed. i: 303 (1867). Varietal type from Angola.

Oleandra africana Bonap., Not. Pterid., **14**: 257 (1923). Type from Mauritius.

ZAMBÉZIA: Namuli Mtn. (N.W. sector). Locally common low-level epiphyte in gallery forest overhanging river. 4,500 ft. 26.vii.62. *S* & *L* 7044.

ASPLENIACEAE

Asplenium anisophyllum Kunze in Linnaea, **10**: 511 (1836). Type from Pondoland, South Africa.

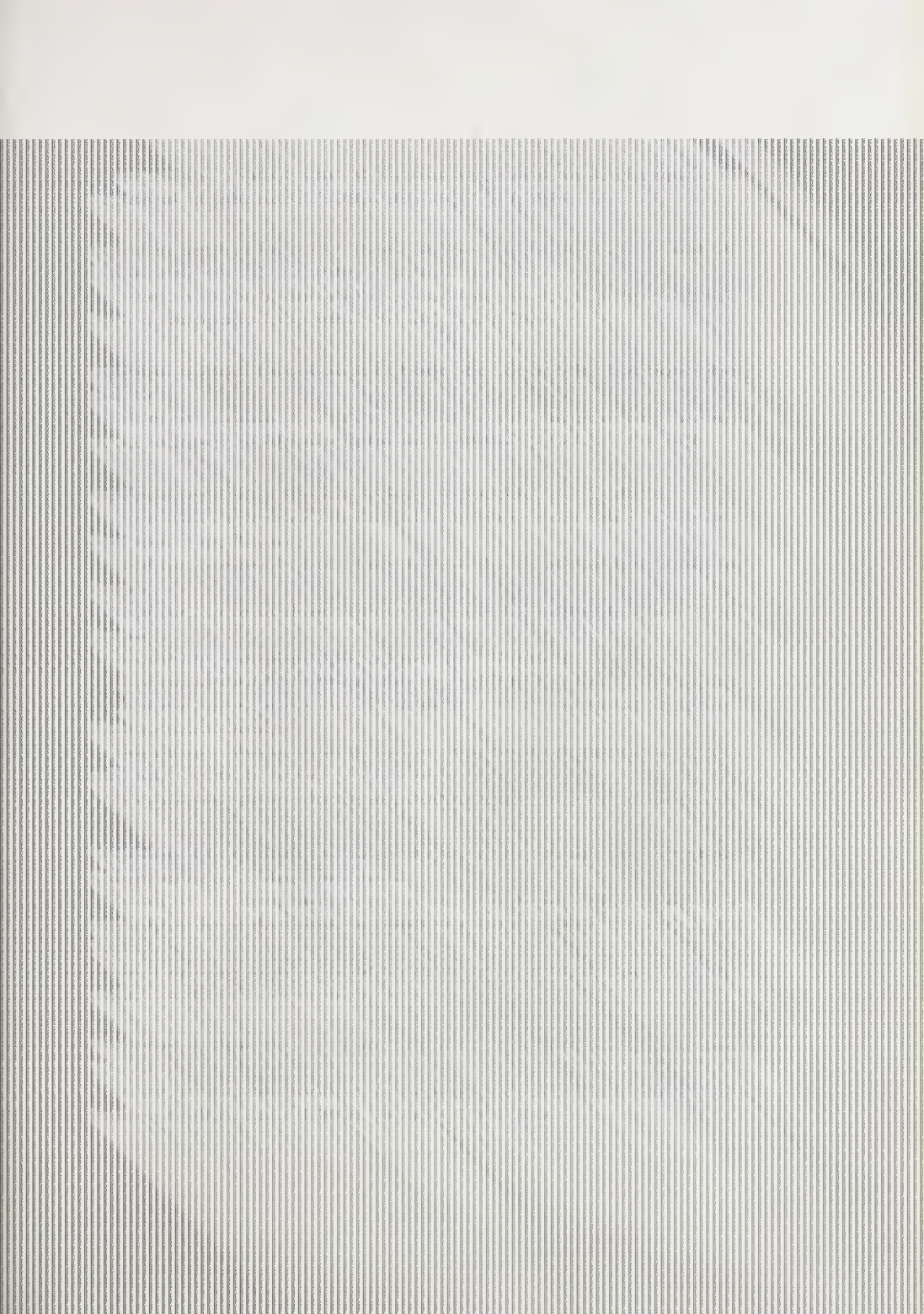
Asplenium geppii Carr., Cat. Welw. Pl., **2**: 269 (1901). Type from Angola.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional on floor of gallery forest. 4,300 ft. 26.vii.62. *S* & *L* 7031.

Asplenium auritum Sw. in Schrad. Journ., **1800** (2): 52 (1801). Type from Jamaica.

ZAMBÉZIA: Namuli Mtn. (S.W. sector), Rio Licungo. Locally frequent low-level epiphyte in tall riverine forest. 3,200 ft. 29.vii.62. *S* & *L* 7084.

Asplenium formosum Willd. in L., Sp. Pl., ed. iv, **5**: 329 (1810). Type from Venezuela.



Asplenium sandersonii Hook., Sp. Fil., 3: 147, t.179 (1860). Type from Natal.

Asplenium vagans Bak., Syn. Fil.: 195 (1867). Syntype from São Tomé and Madagascar.

Asplenium debile Mett. ex Kuhn, Fil. Afr.: 101 (1868) non Fée (1865). Type from Comoro Is.

Asplenium melleri Mett. ex Kuhn, Fil. Afr.: 106 (1868) Type from Madagascar.

Asplenium punctatum Mett. ex Kuhn, Fil. Afr.: 114 (1868). Type from São Tomé.

Asplenium hanningtonii Bak. in Journ. of Bot., 1883: 245 (1883). Type from Tanganyika.

Asplenium comorense C. Chr., Ind. Fil.: 103 (1906). Type from Comoro Is.

ZAMBÉZIA: Namuli Mtn. (S.W. sector), Rio Licungo. Locally frequent low-level epiphyte in deep shade in tall riverine forest. 3,200 ft. 29.vii.62. *S* & *L* 7089.

Asplenium dregeanum Kunze in Linnaea, 10: 517 (1836). Type from Pondoland, Cape Province.

Asplenium brachypterum Kunze ex. Houlst. & Moore in Gard. Mag. Bot., 3: 260 (1851). Type from Sierra Leone.

Asplenium gracile Peter in Fedde, Rep. Sp. Nov., Beih., 40: 73, t.5, fig. 2 (1929) non Don (1825) nec Fée (1852) nec Pappe & Rawson (1858). Type from Tanganyika.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Locally frequent on humus covered boulders in gallery forest. 4,300 ft. 26.vii.62. *S* & *L* 7034.

Asplenium rutaefolium (Berg.) Kunze var. **bipinnatum** (Forsk.) Schelpe stat. nov. et comb. nov.

Lonchitis bipinnata Forsk., Fl. Aegypt. Arab.: 184 (1775). Type from Yemen. (Basionym).

Asplenium bipinnatum (Forsk.) C. Chr. in Hieron., Wiss. Ergebn. Deutsch. Zentral-Afr. Exped., 2: 11 (1910) non Roxb. (1844).

Caenopteris furcata Berg. in Acta Petropol., 1782 (2): 249, t.7, fig. 1 (1786). Type from Réunion.

Darea furcata (Berg.) Willd. in L., Sp. Pl., ed. iv, 5: 297 (1810).

Adiantum borbonicum Jacq., Coll., 3: 286, t.21, fig. 1 (1789). Type from Réunion.

Asplenium borbonicum (Jacq.) Hook., Sp. Fil., 3: 207 (1860).

Darea disticha Kaulf., Enum. Fil.: 180 (1824) nom. illegit.

Caenopteris disticha (Kaulf.) Spreng. in L., Syst. Veg., ed xvi, 4: 91 (1827).

Asplenium distichum (Kaulf.) Mett. ex Salomon, Nomenclator: 84 (1883).

Darea stans Bory in Belanger, Voy., Bot., 2: 53 (1833). Type from Mascarene Is.

Asplenium stans (Bory) Kunze in Linnaea, 10: 521 (1836).

Asplenium linearilobum Peter in Fedde, Rep. Sp. Nov., Beih., 40: 80, t.2, figs. 7-8 (1929). Type from Tanganyika.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional lithophyte in gallery forest. 4,300 ft. 26.vii.62. *S* & *L* 7033.

The typical variety from South Africa has more dissected pinnae than in the plants from the Mascarene Is., Tropical East Africa and the Yemen which are referred here to a separate variety. Intermediates between the two varieties are known from Rhodesia and Nyasaland.

Asplenium theciferum (H.B.K.) Mett. var. *concinnum* (Schrad.) C. Chr. in Dansk bot. Arkiv, 7: 104 (1932).

Davallia concinna Schrad. in Gött. gel. Anz., 1818: 918 (1818). Type from South Africa.

Loxoscaphe concinnum (Schrad.) Moore in Journ. of Bot., 5: 227 (1853).

Asplenium concinnum (Schrad.) Kuhn, Fil. Afr.: 99 (1868).

Davallia campyloptera Kunze in Linnaea, 10: 544 (1836). Type from Cape Province.

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional mid-level epiphyte in gully forest. 3,500 ft. 19.vii.62. *S* & *L* 6921.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional mid-level epiphyte in gully forest. 3,200 ft. 25.vii.62. *S* & *L* 6998; Namuli Mtn. (S.W. sector), Rio Licungo. Frequent low-level epiphyte in tall riverine forest. 3,200 ft. 29.vii.62. *S* & *L* 7087.

The typical variety of *A. theciferum* from tropical South America has a "horn" of tissue, subtending the sorus, which is usually much longer than in the Southern African specimens. Plants with long "horns" from Cameroons and Fernando Po were described as *A. cornutum* Alston but these intergrade through tropical Africa both with *A. theciferum* var. *concinnum* and with *A. theciferum* var. *schimperi* (Hook.) Kuhn from Ethiopia and the Sudan.

THELYPTERIDACEAE

Thelypteris palustris Schott. var. *squamigera* (Schlechtend.) Tard. in Mém. I.F.A.N., 28: 119, t.20, figs 7-9 (1953).

Aspidium thelypteris (L.) Sw. var. *squamigerum* Schlechtend., Adumbr.: 23, t.11 (1825). Type from South Africa.

Dryopteris thelypteris (L.) A. Gray var. *squamigera* (Schlechtend.) C.Chr., Ind. Fil.: 297 (1905).

Aspidium squamigerum (Schlechtend.) Fée, Mém. Fam. Foug., 8: 104 (1857).

Pteris confluens Thunb., Prod. Fl. Cap.: 171 (1800). Type from Cape Province.

Lastrea squamulosa Presl, Tentamen: 76 (1836) nom. nud.

Nephrodium squamulosum (Presl) Hook. f., Fl. N.Z., 2: 39 (1855).

Lastrea thelypteris (L.) Bory var. *squamulosa* Beddome, Handb. Ferns Brit. India, Suppl.: 54 (1892).

Thelypteris squamulosa (Presl) Ching in Bull. Fan. Mem. Inst. Biol. Bot., 6: 5, 329 (1936).

ZAMBÉZIA: Namuli Mtn. (W. sector). Locally frequent in moist gully in secondary scrub. 4,500 ft. 26.vii.62. S & L 7016.

**Thelypteris dentata* (Forsk.) Allen, Fl. N. Zealand, 1: 52 (1961).

Polypodium dentatum Forsk., Fl. Aegypt. Arab.: 185 (1775). Type from Yemen.

Dryopteris dentata (Forsk.) C. Chr. in Vid. Selsk. Skr., Afd. 8, 6: 24 (1920).

Cyclosorus dentatus (Forsk.) Ching. in Bull. Fan Mem. Inst. Biol. Bot., 8: 206 (1938).

MOÇAMBIQUE: Ribaué Mtn. (E. sector). Occasional in dense undergrowth on forest margin. 3,400 ft. 19.vii.62. S & L 6939.

ZAMBÉZIA: Namuli Mtn. (S.W. sector), Châ Moçambique. Occasional in gallery forest and as a weed in tea plantation. 2,700 ft. 29.vii.62. S & L 7076.

***Thelypteris quadrangularis* (Fée) Schelpe comb. nov.**

Nephrodium quadrangulare Fée, Gen. Fil.: 308 (1852). Type from British Guiana. (Basionym).

Dryopteris quadrangularis (Fée) Alston in Journ. of Bot., 75: 253 (1937).

Cyclosorus quadrangularis (Fée) Tard. in Not. Syst., 14: 345 (1952).

Dryopteris contigua Rosenst. in Meded. Rijksherb. Leiden, 31: 8 (1917). Type from Borneo.

Cyclosorus contiguus (Rosenst.) Copel., Gen. Fil.: 142 (1947).

MOÇAMBIQUE: Ribaué Mtn. (E. sector). Rare in deep shade in gully forest. 3,600 ft. 19.vii.62. S & L 6925.

ZAMBEZIA: Namuli Mtn. (S.W. sector), Châ Moçambique. Occasional in gallery forest. Rhizome erect. 2,700 ft. 29.vii.62. S & L 7077.

A pantropical species, as construed here, which is intermediate between the genera *Thelypteris* Schmidel and *Cyclosorus* Link. The author is indebted to Prof. R. E. Holttum for his opinion on the conspecificity of *T. quadrangularis* and *C. contiguus*.

LOMARIOPSIDACEAE

**Elaphoglossum acrostichoides* (Hook. & Grev.) Schelpe comb. nov.

Vittaria acrostichoides Hook. & Grev., Icon. Fil.: t.186 (1830). Type from Cape Province. (Basionym)

Drymoglossum acrostichoides (Hook. & Grev.) Moore, Index: 31 (1857).

Elaphoglossum preussii Hieron. in Bot. Jahrb., **46**: 402 (1911). Type from West Africa.

ZAMBÉZIA: Namuli Mtn. (N.W. sector). Locally common low-level epiphyte in gallery forest overhanging river. 4,500 ft. 26.vii.62. *S* & *L* 7048.

This taxon has been confused previously with the American *E. petiolatum* (Sw.) Urban by Sim (1915), with the St. Helena and south-western Cape Province *E. conforme* (Sw.) Schott. by Adamson (1942) and with the southern Cape Province *E. angustatum* (Schrader) Hieron. by Alston & Schelpe (1952). A good illustration of *E. acrostichoides* is Sim's (1915) plate 149, fig. 2. The fertile frond in the type, seen at Kew, is incompletely acrostichoid.

Elaphoglossum macropodium (Fée) Moore, Ind. Fil.: 11 (1857).

Acrostichum macropodium Fée, Mém. Fam. Foug. **2**: Acrost.: 30, t.6, fig. 2 (1845). Type from Réunion.

Elaphoglossum conforme (Sw.) Schott. var. *latifolium* Sim, Ferns S. Afr., ed. ii: 286 (1915). Varietal type from Natal and Rhodesia.

ZAMBÉZIA: Namuli Mtn. (N.W. sector). Locally common low-level epiphyte in gallery forest overhanging river. Sterile fronds elliptic 24 cm. long, 4·8 cm. broad; stipe 15 cm. long; rhizome scales lanceolate, pale brown 6·5 mm. long; no sporulating fronds found. 4,500 ft. 26.vii.62. *S* & *L* 7046.

In the south-east African plants the stipes of the sterile fronds are about as long as the laminae, whereas in the Réunion specimens seen the stipes are half the length of the laminae.

****Elaphoglossum salicifolium*** (Willd. ex Kaulf.) Alston in Exell, Cat. S. Tomé: 92 (1944).

Acrostichum salicifolium Willd. ex Kaulf., Enum. Fil.: 58 (1824).

Elaphoglossum viscosum (Sw.) Schott. var. *salicifolium* (Willd. ex Kaulf.) Hieron. ex Brause in Wiss. Ergebn. Deutsch. Zentral-Afr. Exped. 1907-1908, **2**: 35 (1910).

Elaphoglossum petiolatum (Sw.) Urban var. *salicifolium* (Willd. ex Kaulf.) C. Chr. in Dansk. bot. Arkiv, **7**: 168 (1932).

ZAMBÉZIA: Namuli Mtn. (N.W. sector). Locally common low-level epiphyte in gallery forest overhanging river. 4,500 ft. 26.vii.62. *S* & *L* 7047; Namuli Mtn. (S.W. sector), Rio Licungo. Locally frequent low-level epiphyte in tall riverine forest. 3,200 ft. 29.vii.62. *S* & *L* 7092.

Elaphoglossum spatulatum (Bory) Moore var. *uluguruense* (Reimers) Schelpe stat. nov. et comb. nov.

Elaphoglossum uluguruense Reimers in Notizbl. Bot. Gart. Berlin, **12**: 80 (1934). Type from Tanganyika. (Basionym)

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Locally common on shaded rock face on streambank in gallery forest. 4,300 ft. 26.vii.62. *S & L* 7035; Namuli Mtn. (S.W. sector), Rio Licungo. Locally abundant in deep shade on mossy boulders in tall riverine forest. 3,200 ft. 29.vii.62. *S & L* 7094.

Most of the sterile fronds in the Tanganyikan and Moçambique specimens seen are narrower than in the Mascarene plants available; their fertile fronds are approximately of the same shape. However, the South African specimens have even shorter and broader sterile laminae and conspicuously shorter and broader fertile laminae.

ASPIDIACEAE

Dryopteris inaequalis (Schlechtend.) O. Kuntze, Rev. Gen. Pl., **2**: 813 (1891).

Aspidium inaequale Schlechtend., Adumbr.: 23, t.12 (1825). Type from Cape Province.

Lastrea inaequalis (Schlechtend.) Presl, Tentamen: 77 (1836).

Nephrodium inaequale (Schlechtend.) Hook., Sp. Fil., **4**: 125 (1862) non Schrad. (1824)

Polystichum inaequale (Schlechtend.) Keys., Polypod. Cyath. Hb. Bung.: 44 (1873).

Lastrea pentagona Moore in Journ. of Bot., **5**: 227 (1853). Type from Natal.

Nephrodium pentheri Krasser in Ann. Hofmus. Wien, **15**: 5, t.2, figs. 1—5 (1900). Type from South Africa.

Dryopteris pentheri (Krasser) C. Chr., Ind. Fil.: 284 (1905).

MOÇAMBIQUE: Ribauè Mtn. (E. sector). Occasional in undergrowth of *Brachystegia* woodland. 3,800 ft. 19.vii.62. *S & L* 6926.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional on roadside earthbank on margin of gully forest. 2,500 ft. 25.vii.62. *S & L* 7002.

Dryopteris athamantica (Kunze) O. Kuntze, Rev. Gen. Pl., **2**: 812 (1891).

Aspidium athamanticum Kunze in Linnaea, **18**: 123 (1844). Type from Natal.

Lastrea athamantica (Kunze) Moore in Journ. of Bot., **5**: 311 (1853).

Nephrodium athamanticum (Kunze) Hook., Sp. Fil., **4**: 125, t.258 (1862).

Lastrea plantii Moore in Journ. of Bot., **5**: 227 (1853). Type from Natal.

Nephrodium eurylepium Peter in Fedde, Rep. Sp. Nov., Beih., **40**: 57 (1929). Type from Tanganyika.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Occasional on roadside bank. 2,500 ft. 25.vii.62. *S & L* 7000.

Tectaria gemmifera (Fée) Alston in Journ. of Bot., **77**: 228 (1939).

Sagenia gemmifera Fée, Gen. Fil.: 313 (1852). Type from Madagascar.

Aspidium coadunatum Wall. ex Hook. var. *gemmiferum* (Fée) Mett. ex Kuhn, Fil. Afr.: 128 (1868).

MOÇAMBIQUE: Ribauê Mtn. (E. sector). Occasional on floor of gully forest. 3,500 ft. 19.vii.62. *S* & *L* 6937.

ZAMBÉZIA: Namuli Mtn. (E. sector). Occasional in moist scrub. 3,800 ft. 27.vii.62. *S* & *L* 6937; Namuli Mtn. (S.W. sector), Rio Licungo. Locally frequent in undergrowth of tall riverine forest in deep shade. 3,200 ft. 29.vii.62. *S* & *L* 7032.

BLECHNACEAE

Blechnum attenuatum (Sw.) Mett., Fil. Hort. Bot. Lips.: 64, t.3, figs 1—6 (1856).

Onoclea attenuata (Sw.) in Schrad. Journ., 1800 (2): 73 (1801). Type from Mauritius.

Lomaria attenuata (Sw.) Willd. in L., Sp. Pl., ed. iv, 5: 290 (1810).

Spicanta attenuata (Sw.) O. Kuntze, Rev. Gen. Pl. 821 (1891).

Lomaria heterophylla Desv. in Mag. Ges. Naturf. Berl., 5: 330 (1811). Type from Cape Province.

Blechnum heterophyllum (Desv.) Schlechtend., Adumbr.: 37 (1827).

Lomaria gigantea Kaulf., Enum. Fil.: 150 (1824). Type from Cape Province.

Blechnum giganteum (Kaulf.) Schlechtend., Adumbr.: 36, t.20, 22 (1827).

Lomaria decipiens Pappe & Raws., Syn. Fil. Afr. Austr.: 27 (1858). Type from Cape Province.

ZAMBÉZIA: Namuli Mtn. (S.W. sector). Rare on floor of gully forest. 4,300 ft. 26.vii.62. *S* & *L* 7032.

B. attenuatum is construed here in a wide sense. The specimen from Namuli is the South African form of the species which has larger fronds and a more condensed rhizome than in the limited Mascarene material seen. It is possible that if a wider range of complete material from the type locality becomes available the Southern African form may have to be treated as a distinct variety or subspecies.

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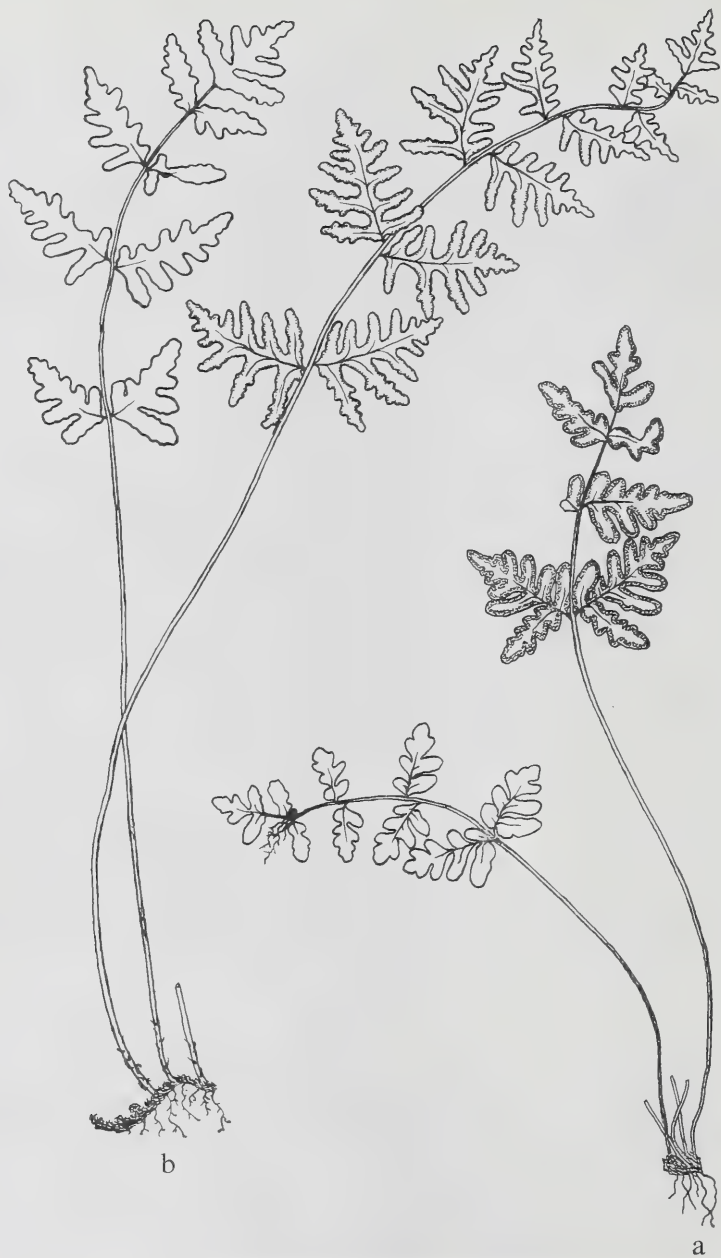


FIG. 1. (a) *Notholaena leachii* Schelpe (luxuriant form).
(b) *Cheilanthes mossambicensis* Schelpe.

(x $\frac{1}{2}$)